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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER

TRAN, THUY V

ART UNIT PAPER NUMBER

2821

DATE MAILED: 09/21/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/668,262

Applicant(s)

MITA, KAZUTOSHI

Examiner

Thuy V. Tran

Art Unit

2821

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 03 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 24 September 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-18 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-18 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 24 September 2003 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 09/24/03.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

This is a response to the Applicant's filing on September 24th, 2003. In virtue of this filing, claims 1-18 are currently presented in the instant application.

Priority

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Information Disclosure Statement

2. The information disclosure statement (IDS) submitted on September 24th, 2003 is in compliance with the provisions of 37 CFR 1.97. Accordingly, the information disclosure statement is being considered by the examiner.

Drawings Objections

3. The drawings are objected to because of misspelled textual reference characters in Figs. 3 ("windou" should be corrected as --window--) and 16 ("high-pressur" should be corrected as --high-pressure--). Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. The replacement sheet(s) should be

Art Unit: 2821

labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Abstract Objection

4. The abstract of the disclosure is objected to because it is too long. Correction is required.

See MPEP § 608.01(b).

5. Applicant is reminded of the proper language and format for an abstract of the disclosure.

The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited. The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.

Specification Objection

6. The specification of the disclosure is objected to because of the following informalities:

Page 9, line 14, "the square box" should be changed to --==--.

Appropriate correction is required.

Claim Objections/ Minor Informalities

7. Claims 1, 5-10, 17, and 18 are objected to because of the following informalities:

Claim 1, line 10, --to-- should be inserted between "according" and "its";

Claim 1, line 12, "the" should be changed to --a--;

Claim 1, line 13, --lamp-- should be inserted between "discharge" and ",";

Art Unit: 2821

Claim 1, line 15, “the” (first occurrence) should be changed to --a--;

Claim 1, line 24, “;” should be changed to --.--;

Claim 5, line 2, “for” should be deleted;

Claim 5, line 3, --the-- should be inserted between “to” and “resonance”;

Claim 5, line 4, “the” (first occurrence) should be changed to --a--;

Claim 6, line 3, “as” should be changed to --at--;

Claim 7, line 3, “as” should be deleted;

Claim 7, line 6, “;” should be changed to --:--; and “the square box” should be changed to
--==--;

Claim 8, line 2, “the” should be changed to --a--;

Claim 9, line 3, “as” should be deleted;

Claim 9, line 4, “the” (first occurrence) should be changed to --a--;

Claim 9, line 5, “operating” should be changed to --operation--;

Claim 10, line 4, “as” should be deleted;

Claim 10, line 5, “the” (first occurrence) should be changed to --a--;

Claim 17, lines 2-4, “wherein the time ratio ... as in claim 14,” should be deleted;

Claim 18, line 3, --wherein-- should be added after “;”;

Claim 18, line 4, “a” should be changed to --the--; and

Claim 18, line 6, “a” should be changed to --an--.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

8. The following is a quotation of the second paragraph of 35 U.S.C. 112:

Art Unit: 2821

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter, which the applicant regards as his invention.

9. Claims 1-18 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

With respect to claim 1, the recitation “a time ratio controller ... at an adequate time” in lines 19-24 renders the claim indefinite since it is incomplete and not clear.

First, the parameters of which the time ratio is controlled by the time ratio controller are not mentioned or provided. In light of the submitted specification, such time ratio is of an oscillation time at the first frequency and an oscillation time at the second frequency (see page 20, lines 18-21). If the interpretation is correct, providing therein such a sufficient description is requested.

Second, it appear that part of the recitation “so as that the inverter outputs ... at an adequate time” should be corrected so as to show that “outputs of the inverter are alternately impressed to the high-pressure discharge lamp at an adequate time at the first frequency and the second frequency”.

Clarification is required.

Claims 2-18 are also rejected under 35 U.S.C. 112, 2nd paragraph, since they are dependent on claim 1.

Similar rejections under 35 U.S.C. 112, 2nd paragraph applied to claims 7 and 9-10.

Claim Rejections - 35 USC § 103

10. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

Art Unit: 2821

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

11. Claims 1-6, 11, 13-14, and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over the first embodiment (Figs. 3 and 4a-4b) of Okamoto et al. (U.S. Patent No. 5,936,358) in view of the third embodiment (Fig. 6) of Okamoto et al. (U.S. Patent No. 5,936,358).

With respect to claim 1, as best understood, the first embodiment (Figs. 3 and 4a-4b) of Okamoto et al. discloses a high pressure discharge lamp lighting apparatus comprising (1) a DC power source (output of rectifier [14]; see Fig. 3), (2) an inverter [11a, 11b] for converting a DC supplied from the DC power source to an AC, (3) an AC path for transmitting the AC output from the inverter to a high pressure discharge lamp [B, B1, B2], (4) a resonator [15c, 16a] having a predetermined resonance frequency, and interposed in the AC path, (5) an inverter controller [18, 17] for controlling the inverter according to its variable frequency oscillation function by selectively impressing a first frequency [Tc] in a stable operation window free from causing acoustic resonance in the high pressure discharge lamp and a second frequency [Ta] higher than the first frequency to the inverter (see Figs. 4a-4b), and (6) a time ratio controller [21a] for controlling a time ratio of an oscillation time at the first frequency [Tc] and an oscillation time at the second frequency [Ta] based on a set value of lamp voltage at the steady state of the high pressure discharge lamp (see col. 6, lines 16-47) so that outputs of the inverter at the first frequency [Tc] and the second frequency [Ta] are alternately impressed to the high pressure discharge lamp at an adequate time. The first embodiment (Figs. 3 and 4a-4b) of Okamoto et al. does not disclose a lamp wattage detector for detecting a lamp wattage of the high pressure

discharge lamp from a lamp across the high pressure discharge lamp and a current flowing through the high pressure discharge lamp.

The third embodiment (Fig. 6) of Okamoto et al. discloses a lamp wattage detector [100, 42] for detecting a lamp wattage of the high pressure discharge lamp from a voltage across the high pressure discharge lamp and a current flowing through the high pressure discharge lamp.

It would have been obvious to one of ordinary skills in the art at the time of the invention to modify the first embodiment (Figs. 3 and 4a-4b) of Okamoto et al. by not setting up a lamp power level and additionally configuring a lamp wattage detector as taught by the third embodiment (Fig. 6) of Okamoto et al. to effectively control the lamp as desired in terms of power control since such an arrangement of the wattage detector of the third embodiment can provide an actual value of the lamp wattage to the controller for power control.

With respect to claim 2, the first embodiment (Figs. 3 and 4a-4b) of Okamoto et al. discloses that the second frequency [Ta] is the frequency in other stable operation windows free from causing the acoustic resonance in the high-pressure discharge lamp.

With respect to claim 3, the first embodiment (Figs. 3 and 4a-4b) of Okamoto et al. discloses that the second frequency [Ta] is the frequency in an astable window in which acoustic resonance occurs with the high-pressure discharge lamp.

With respect to claim 4, the first embodiment (Figs. 3 and 4a-4b) of Okamoto et al. discloses that the second frequency [Ta] generally correspond with the resonance frequency of the resonator [15c, 16a].

With respect to claim 5, the first embodiment (Figs. 3 and 4a-4b) of Okamoto et al. discloses that the inverter controller [17] outputting frequency corresponding to the resonance

Art Unit: 2821

frequency of the resonator [15a, 16c] in general at a time of starting the high-pressure discharge lamp and operating the inverter.

With respect to claim 6, the first embodiment (Figs. 3 and 4a-4b) of Okamoto et al. appears to show that setting a time ratio of the first frequency at a range which is 10-100% in the time ratio controller.

With respect to claim 11, the first embodiment (Figs. 3 and 4a-4b) of Okamoto et al. discloses that the time ratio controller [21a] starts after the inverter has started.

With respect to claim 13, the combination of the first embodiment (Figs. 3 and 4a-4b) and the third embodiment of Okamoto et al. disclose that the time ratio controller is supplied its operating power from the resonator [15c, 16a].

With respect to claim 14, the first embodiment (Figs. 3 and 4a-4b) of Okamoto et al. discloses that the time ratio controller [21a] starts after the inverter controller has started.

With respect to claim 17, the combination of the first embodiment (Figs. 3 and 4a-4b) and the third embodiment of Okamoto et al. disclose that an operating power of the inverter controller [17] is supplied from a switching snubber [12a, 12b, D] associated to the inverter [11a, 11b], and an operating power of the time ratio controller [21a] is supplied from the resonator.

12. Claim 18 is rejected under 35 U.S.C. 103(a) as being unpatentable over the first embodiment (Figs. 3 and 4a-4b) of Okamoto et al. in view of the third embodiment (Fig. 6) of Okamoto et al. as applied to claim 1 above, and further in view of Wada et al. (Pub. No.: US 2002/0192391 A1).

With respect to claim 18, the combination of the first and third embodiments of Okamoto et al. disclose all of the claimed subject matter, except for specifying that the high-pressure

Art Unit: 2821

discharge lamp lighting apparatus be included in a luminaire having an appliance of an instrument with which it is equipped with the high-pressure discharge lamp.

Wada et al discloses a luminaire comprising a dielectric barrier discharge lamp configured in a treating chamber (appliance as claimed) for excluding oxygen therein (see [0006], lines 9-11).

Since the high-pressure discharge lamp lighting apparatus of the combination of the first and third embodiments of Okamoto et al. is a dielectric barrier discharge lamp having a capability of emitting ultraviolet ray, to form a luminaire by installing such high-pressure discharge lamp lighting apparatus of the combination of the first and third embodiments of Okamoto et al. in a treating chamber or appliance to exclude oxygen from the atmosphere therein as taught by Wada et al. would have been deemed obvious to a person skilled in the art.

Allowable Subject Matter

13. Claims 7-10, 12, and 15-16 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

14. The following is a statement of reasons for the indication of allowable subject matter:

Prior art fails to disclose or fairly suggest:

- A high-pressure discharge lamp wherein the ratio of a lamp power $W1$ of the high-pressure discharge lamp during lighting at the first frequency and a lamp power $W2$ of the high-pressure discharge lamp during lighting is given by an equation: $W1/W2 = 2$, in combination with the remaining claimed limitations as called for in claim 7;

- A high-pressure discharge lamp wherein a two-operations alternating frequency is equal to or higher than 100 Hz and lower than the first frequency, in combination with the remaining claimed limitations as called for in claim 8;
- A high-pressure discharge lamp wherein the lamp voltage of the high-pressure discharge lamp does not exceed a voltage at a time that the lamp power becomes maximum in the operation at the first frequency, in combination with the remaining claimed limitations as called for in claim 9;
- A high-pressure discharge lamp wherein the lamp voltage of the high-pressure discharge lamp does not exceed a voltage at a time that the lamp voltage in the operation at the second frequency reaches a prescribed value, in combination with the remaining claimed limitations as called for in claim 10;
- A high-pressure discharge lamp wherein the time ratio controller is supplied its operating power from a smoother associated to the rectifier, in combination with the remaining claimed limitations as called for in claim 12;
- A high-pressure discharge lamp wherein the time ratio controller and the inverter controller have their own power sources with different start-up times, and their start timings are adjusted by the differences of those start-up times, in combination with the remaining claimed limitations as called for in claim 15; and
- A high-pressure discharge lamp wherein an operating power of the time ratio controller is supplied from a smoother associated to a rectifier of the DC power source, in combination with the remaining claimed limitations as called for in claim 16.

Citation of relevant prior art

15. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Prior art Fellows et al. (U.S. Patent No. 5,998,939) discloses a high frequency HID lamp system.

Prior art Fellows et al. (U.S. Patent No. 5,828,185) discloses a high frequency HID lamp system.

Prior art Caldeira et al. (U.S. Patent No. 5,623,187) discloses a controller for gas discharge lamp.

Prior art Holtslag (U.S. Patent No. 5,569,984) discloses a controller for detecting arc instabilities in gas discharge lamps.

Prior art Eriguchi et al. (U.S. Patent No. 5,491,386) discloses a stable high frequency, high-pressure discharge lamp.

Inquiry

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thuy V. Tran whose telephone number is (571) 272-1828. The examiner can normally be reached on M-F (8:00 AM -5:00 PM).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Don Wong can be reached on (571) 272-1834. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Art Unit: 2821

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Thuy V. Tran
Examiner
Art Unit 2821

09/19/2004

A handwritten signature in black ink, appearing to read 'Thuy V. Tran', is written over the printed name and title.